

Limited-Play Optical Media With Improved Shelf-Life and Playability

Abstract of Disclosure

Limited-play optical medium with improved shelf stability are formed from a plurality of layers, including in sequence: (a) a first substrate layer; (b) a data layer; (c) a reflective layer; (d) a reactive layer comprising a dye having a reduced state and an oxidized state and further comprising an oxidized form of a reducing agent effective to convert the dye from the oxidized state to the reduced state, and (e) a second substrate layer. The dye in the reduced state is substantially transparent to light of wavelengths used to read the optical medium, and the dye in the oxidized state absorbs light of wavelengths used to read the optical medium. The reflective metal layer is formed from a metal or metal alloy that is not significantly oxidized by the oxidized form of the reducing agent. For example, the reflective metal layer is suitably formed from silver or gold.

Figures